

With respectful submission in the matter of:

**PUBLIC SAFETY AND HOMELAND SECURITY BUREAU SEEKS  
COMMENT ON TRANSITION PROCESS FOR 700 MHZ PUBLIC  
SAFETY BROADBAND WAIVER RECIPIENTS, PS Docket No. 12-94,  
Comment Date: April 20, 2012**

**Raytheon response with comments:**

Raytheon hereby submits comments in response to the questions raised in this Public Notice.

**1. Background**

Raytheon is a reseller and systems integrator for 3GPP Release 8/9 Long Term Evolution (“LTE”) systems, supplying systems engineering/design, program management, testing, documentation, training, warranty/maintenance services, network infrastructure and User Equipment. Raytheon is the supplier of such equipment to waiver recipient Adams County Communications Center, Colorado, through a subcontract with IP Wireless, and is therefore an interested party in this proceeding.

**2. Comments on Public Notice**

In the Waiver Order 10-79, the Commission found it should act *“in light of the pressing need for public safety to begin development and deployment of wireless broadband network infrastructure”*. This need continues: public safety will benefit from the earliest possible availability of LTE mobile broadband services. The systems being built under waivers continue to provide the waiver recipients with valuable experience, lessons learned, and test beds that the Commission, PSCR and the FirstNet Authority can utilize in formulating new policies, rules and system designs. In fact, the test beds for true interoperability testing in real

life active systems exist today with ADCOM, Texas and Charlotte. For FirstNet, these proactive and leading edge agencies, to include other Waiver Recipients, allow FirstNet the perfect test-bed for their national system design. Further, the allowed continuance of Waiver systems to proceed with purchase and installation will provide potential solutions to the increasing challenges and demands placed on public safety agencies in the 21st century, resulting in those agencies receiving more functionality and capability from the technologies they use.

The Federal Government recognized the importance of early deployment of public safety LTE in the issuance of BTOP stimulus grants for the waiver jurisdictions, as well as the job creation that was the key objective of these grants. These have not changed.

### **Transition Issues**

***“What actions should the Commission take to effectuate the transition? Should the Commission issue a stay to halt deployment by the Waiver Recipients in order to avoid additional costs being incurred by the Waiver Recipients”***

***In the Waiver Order, the Commission states “any deployment or other expenditures made by the requesting jurisdictions pursuant to this Order is undertaken at their own risk and with the understanding that any deployments will be subject to the outcome of the larger proceeding, including possible integration into a nationwide network and compliance with future technical requirements adopted by ERIC or the Commission.”***

The risk, which the waiver recipients have accepted as a condition, continues despite passage of the Spectrum Act. Raytheon respectfully asserts that there is no compelling reason for the Commission to rescind or issue a stay on deployments under the Waivers at this time. Raytheon, when responding to Waiver Recipients in their RFP requests, commits to making the system meet future requirements of the Spectrum Act, soon to be a revisionary process of FirstNet. Any future software changes required to meet Federal requirements for the National Network, will not affect the Waiver Recipients financially (the cost being borne by the contractors).



***What impact would such action have on Waiver Recipients' funding, including obligations such as those under the Broadband Technology Opportunities Program (BTOP)?***

Waiver Recipients understand BTOP grants are conditional on systems being deployed and entering into service on certain milestone dates. Linked to this requirement are contractual commitments that the Waiver Recipients will have with their suppliers. With the understanding they would ultimately be required to fit in with future national network plans, Waiver Recipients regard this risk as manageable given the interoperability architecture inherent in the LTE standards. However, the loss of the BTOP grants through rescinding of waivers could put the Waiver Recipients in a very difficult, financial position unnecessarily, which may jeopardize other aspects of their public safety mission. For some Waiver networks, we note the delivery and deployment of major capital items has occurred.

***Should Charlotte and Texas be treated differently because they plan to enter into service shortly, or because they have already expended substantial funds? Alternatively, should the Commission decline to act on the interoperability showings for Charlotte, Texas or Adams County, because of the impending transition?***

All of the Waiver Recipients have a similar public safety mission, which will benefit from early LTE service availability to first responders. All will have expended funds, and regardless of funds already spent, all will have contractual commitments that put them in a similar position. While we commend Charlotte and Texas on early deployments of the network infrastructure in time for significant public events, the reality is all the Waiver Recipients have urgent needs for the benefits of the broadband network, all need to move forward, there is no case for permission for just Charlotte and Texas to move forward.

***What would be the impact to FirstNet if the Commission did authorize these waiver recipients to enter into service?***

Allowing the Waiver Recipients to continue deployment and enter into service does not alter the impact to FirstNet, as the acceptance of the requirement to interface into the national network was a condition of the waivers and does not change; they continue to have this obligation.

If there is concern of a risk of equipment proving not to be fully interoperable between vendors, the fact is, virtually all LTE infrastructure providers utilize

software-defined systems, such that correction of issues is through software support upgrades, virtually guaranteeing the achievement of interoperability.

***Are there network architectures that the Waiver Recipients who wish to initiate service could utilize that would impact the costs of the transition to FirstNet? What are the costs or other impacts, including lost near term public safety benefits, if the Commission fails to authorize these waiver recipients to enter into service?***

The risk Waiver Recipients agreed to carry caused their network architectures to be appropriately conservative. Additional regulation would not be helpful.

Public safety impact would be harmful due to further delays in implementation. Each delay results in a Public Safety entity lacking critical tools for saving lives. Until FirstNet's formation and plans are developed, it would be speculative to consider how alternative architectures affect it. The near term public safety benefits of the Waiver systems do not change. Allowing Waiver Recipients to continue is positive for Public Safety, and may be beneficial in the formulation and implementation of FirstNet Authority's policy.

Public Safety agencies will benefit from the deployment of an LTE network. However, it is the agencies deploying the LTE system that truly benefit from the knowledge of building the network. Lessons learned include how applications work in the network, inter cell interference coordination research and validation, and network optimization. All of the experience and lessons learned would be communicated and institutionalized by FirstNet prior to a nationwide roll out. If the initial deployments were halted, this critical information would be lost.

***Commenters should address how their proposals are consistent with the Spectrum Act.***

The Act requires that the Commission grant a license to the public safety broadband and D block spectrum to the FirstNet Authority, and that it facilitates the transition of the spectrum, but these cannot occur until the formation of FirstNet. It follows that the current Waivers should continue until this time, and then be reviewed.

As a network infrastructure provider, Raytheon is committed to an LTE architecture that is a 'standards based' solution, and does not rely on vendor unique features; it provides interoperability independent of subscriber unit supplier. It employs equipment that conforms to the latest version (Release 8) of the Long Term Evolution (LTE) standards for 3GPP Evolved Universal



Terrestrial Radio Access (E-UTRA). We understand the BTOP requirements and the FCC waiver requirements, and we support these requirements.

The Act allows states to opt out and build their own radio access networks, and the waiver networks deployment could be the basis for some of these. Having these deployments would shorten the length of deployment and reduce the cost of these State opted-out networks to FirstNet.

*Would one possible approach would be to rescind all the waiver authorizations. What would the impact including cost be to the Waiver Recipients of such an approach? Could the cost impact be minimized in any way? For instance, could we rescind the waiver authorizations of only those jurisdictions who have not yet expended significant funds? Is there another method to achieve the same objectives, while minimizing any adverse impacts? Is this approach consistent with the Spectrum Act?*

As stated above, we believe that it is premature to rescind the waiver authorizations until the FirstNet Authority is in operation, and any such move could have a negative financial and operational impact on the Waiver Recipients.

*We also recognize that the initial term of the May 2010 Waiver Recipients' leases will end in September 2012, shortly after the August 20, 2012 deadline for establishing the FirstNet board. Is there an appropriate way to transition their authorizations coincident with the end of the lease term, or coincident with the issuance of a license to FirstNet? Is such an approach consistent with the Spectrum Act? Should the Commission simply allow these leases to expire or decline to renew them? Should the Commission allow renewal at the option of FirstNet? Should the Commission allow all or some of the leases to be renewed with the PSST, and then transferred to FirstNet at an appropriate time? Should such lease renewal terms be for a more limited duration than the initial two-year lease? What term? What would be the cost impact of each of these approaches? Could these approaches be structured in a manner that would be consistent with the Spectrum Act?*

In our view, these issues should be deferred and considered at the time of expiry of the leases in September 2012. Until the creation of FirstNet's plans, anything further would be premature.

*Should the Commission authorize operations on a special temporary authority (STA) basis during an interim period following the expiration of these leases, until such time as FirstNet can determine whether to enter into a new lease, or until such time as the relevant state determines whether or not it will opt out of the nationwide license? How long could such an arrangement persist? Is this type of arrangement viable for all the Waiver Recipients, or*

*should it be limited to those with imminent deployment plans, or another extenuating circumstance? What factors would the Commission use to make such a determination?*

Because FirstNet's formation is on August 20, 2012, it is unlikely the formation of their plans or policies will be prior to the expiry of the leases. Therefore, either the leases should be renewed, or STA's granted until such time as the FirstNet plans are released and reviewed at that time. We do not believe there is any basis for some Waiver Recipients to be treated differently; all have a public safety mission and contractual obligations.

### 3. Conclusion

Waiver Recipients accepted the risk of fitting into the requirements of the future national network, and we believe it to be their decision whether to continue with their deployment plans. Until the FirstNet Authority formation and its policy and network architecture is determined, we believe it is not in Public Safety's best interest for the Commission to take any action on the waivers; this should be reconsidered at the September 2012 date when the initial spectrum leases to waiver recipient's end.

Respectfully submitted,

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